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**Hughes**

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(54) **MATERIALS FOR STORING AND  
RELEASING REACTIVE GASES**

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See application file for complete search history.

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(57) **ABSTRACT**

Compositions, methods, and devices are provided for use in containing and releasing a gas, particularly a reactive gas. The composition can include a reactive gas, reactive gas precursor, or combination thereof; a fluid in which the reactive gas, reactive gas precursor, or combination thereof is dissolved; and a solid material (e.g., particles or fibers) in which fluid is absorbed or adsorbed, wherein the solid material controls the formation or release of the reactive gas. The materials and methods allow rapid and safe generation, transfer, and application of high concentrations of chlorine dioxide gas in solid, liquid, and gas phase systems and are suitable for a variety of chlorine dioxide applications, such as disinfecting and sanitizing liquids, solid surfaces, and porous materials.

**12 Claims, 3 Drawing Sheets**

